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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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VENABLE LLP				
P.O. BOX 34385				
WASHINGTON, DC 20043-9998				
EXAMINER				
MATZEK, MATTHEW D				
ART UNIT		PAPER NUMBER		
1794				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/506,813

Applicant(s)

OLES ET AL.

Examiner

MATTHEW D. MATZEK

Art Unit

1794

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 January 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 4-34 is/are pending in the application.
- 4a) Of the above claim(s) 6-23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 4, 5, and 24-34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 September 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB08)
- Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

Response to Amendment

1. The amendment dated 1/21/2009 has been fully considered and entered into the Record. Claims 1, 4, 5, 29 and 32 have been amended and new claims 33 and 34 have been added. The amended and new claims contain no new matter. The previous rejection made in view of Henkel and Giatras et al. has been withdrawn as the applied references fail to teach a hydrophilic surface consisting essentially of fumed hydrophilic silica particles anchored in said surface or secured in a carrier layer forming the hydrophilic surface.
2. Claims 1 and 4-34 remain pending with claims 6-23 remain withdrawn from consideration. Claims 1, 4, 5, and 24-34 remain active.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1, 4, 5 and 24-34 rejected under 35 U.S.C. 103(a) as being unpatentable over Soane et al. (US 2003/0013369 A1) in view of the Handbook of Fillers-A Definitive User's Guide and Databook, "The Handbook".
 - a. Soane et al. disclose nanoparticle-based treatments for textiles (title). The nanoparticles preferably have a size ranging from about 1 nm to 1 micron [0080]. The reactive nanoparticle may be made from a variety of materials including hydrophilic materials [0080]. Silica particles are used as sunblocking agents [0112]. The nanoparticle consists of the payload (desired reactive material) and is surrounded by a

polymer shell or matrix. The surrounding shell or matrix is in turn reactive with fibers, yarns, fabrics or webs and allows the nanoparticle to become anchored to the surface of textile [0005]. The nanoparticles then become fixative particles. Examples I and II demonstrate that while the payload is embedded or entrapped in within the polymeric encapsulator, it is also capable of performing its desired function [0101]. If the particles cover enough of the treated textile a carrier layer would be formed comprising the polymeric encapsulator of each of the nanoparticles. The embedded nanoparticles may result from either solvation or a swelling process [0094]. Functional groups of the nanoparticle shell react with the coated textile or web and the textile is then dried and the polymeric encapsulator may then be cured [0094].

- b. Soane et al. teach the use of generic silica, but fail to teach the use of fumed silica for the purpose of making the treated surface hydrophilic.
- c. The Handbook provides background information about the various forms of silica filler and how they are formed (page 131). Silica is commonly used in industry due to chemical inertness and durability (page 131). Fumed silica is amorphous in nature and possesses benefits over its crystalline form (page 134). It is used as filler for a number of reasons including thixotropy, sag resistance, particle suspension, emulsifiability, reinforcement, gloss reduction, flow enhancement of powders, anti-caking, anti-slip, anti-blocking, etc. The many benefits offered by this filler allow fumed silica to be used in many industries (page 137). The reference also discloses the properties of fumed silica such as its primary particle size ranging from 5-40 nm and surface area of 50-400 m²/g (page 132).

- d. Soane et al. and the Handbook are from the same field of endeavor (i.e. nanoparticle treatments).
- e. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to have used the fumed silica as disclosed in the Handbook in the invention of Soane et al. with the motivation of providing improved performance due to the inherent properties of fumed silica and the amount of surface area available as disclosed. Soane et al. and the Handbook fail to explicitly state that their silica particles would act as a hydrophilicizing agent, but their combination does render the claimed invention obvious. Therefore, the applied combination of references would yield the claimed hydrophilic surface.
- f. Claim 25 is met as textile of Soane et al. may be used as a cleaning textile.
- g. The nanoparticles may be applied to a textile via methods known in the art such as soaking, spraying, dipping, fluid-flow, padding and the like [0094]. The concentration of the nanoparticles present in the solution used to treat the textile depends on the amount of nanoparticles deposition desired [0096]. In the same way the percentage of the surface composed of the nanoparticles is a result-effective variable affecting the function of the payload located in the nanoparticle [0096]. Consequently, absent a clear and convincing showing of unexpected results demonstrating the criticality of the claimed ratio, it would have been obvious to one of ordinary skill in the art to optimize this result-effective variable by routine experimentation. *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977).

- h. Soane et al. fail to explicitly disclose that the polymeric shell of the nanoparticle is melted. Claim 32 is rejected as in order to coat the payload nanoparticles with the polymer shell it is covered with molten polymer. Therefore, the polymer coated nanoparticles applied to the surface of the textile the carrier layer would necessarily comprise melted fixative as the shell at one time was molten. Furthermore, it would have been obvious to one of ordinary skill in the art to have heated the polymer to the point of at least partial melt because the melted polymer would offer additional surface area for bonding over an unmelted shell. The additional surface area would provide an increase in the bond strength over the single point covalent bonding available without any melting of the polymer.
4. Claims 1, 4, 5 and 24-34 rejected under 35 U.S.C. 103(a) as being unpatentable over Soane et al. (US 2003/0013369 A1) in view of the Handbook of Fillers-A Definitive User's Guide and Databook, "The Handbook" as relied upon above to reject claims 1, 4, 5 and 24-34 and further in view of Henkel (WO 01/83662 A1). The English equivalent (US 2004/0023824 A1) of the WO document has been relied upon for this rejection.
- a. As pointed out *supra*, the disclosures of Soane et al. and the Handbook fail to teach the use of fumed silica for the purpose of making the treated surface hydrophilic. Here Examiner has set forth an additional rejection establishing that it is well known in the art of textile treatments involving nanoparticles to use silica to hydrophilicize the surface of textiles.
- b. Henkel discloses the use of silica [0011] particles with sizes ranging from 5 to 500 nm for improving the soil-release properties of textiles and other surfaces (abstract

and [0012]). The silica particles hydrophilicize the surfaces to which they are attached [0002].

c. Soane et al. and Henkel are from the same field of endeavor (i.e. nanoparticle treated textiles).

d. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to have specifically selected silica to treat the textile of Soane et al. with the motivation of providing the article with a hydrophilic surface as disclosed by Henkel.

Response to Arguments

5. Applicant's arguments with respect to claims 1, 4, 5 and 24-34 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MATTHEW D. MATZEK whose telephone number is (571)272-2423. The examiner can normally be reached on M-F, 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Larry Tarazano can be reached on 571.272.1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Matthew D Matzek/
Examiner, Art Unit 1794

/D. Lawrence Tarazano/
Supervisory Patent Examiner, Art Unit
1794

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